

WHAT IS CLAIMED IS:

Sur a/ 5

1. An isolated polypeptide comprising an amino acid sequence selected from the group consisting of:
 - (a) the amino acid sequence as set forth in either SEQ ID NO: 2 or SEQ ID NO: 5; and
 - (b) the amino acid sequence encoded by the DNA insert in ATCC Deposit No. PTA-976.
- 10 2. An isolated polypeptide comprising an amino acid sequence selected from the group consisting of:
 - (a) the amino acid sequence as set forth in either SEQ ID NO: 3 or SEQ ID NO: 6, optionally further comprising an amino-terminal methionine;
 - (b) an amino acid sequence for an ortholog of either SEQ ID NO: 2 or SEQ ID NO: 5;
 - 15 (c) an amino acid sequence that is at least about 70 percent identical to the amino acid sequence of either SEQ ID NO: 2 or SEQ ID NO: 5, wherein the polypeptide has an activity of the polypeptide set forth in either SEQ ID NO: 2 or SEQ ID NO: 5;
 - 20 (d) a fragment of the amino acid sequence set forth in either SEQ ID NO: 2 or SEQ ID NO: 5 comprising at least about 25 amino acid residues, wherein the fragment has an activity of the polypeptide set forth in either SEQ ID NO: 2 or SEQ ID NO: 5, or is antigenic; and
 - 25 (e) an amino acid sequence for an allelic variant or splice variant of the amino acid sequence as set forth in either SEQ ID NO: 2 or SEQ ID NO: 5, the amino acid sequence encoded by the DNA insert in ATCC Deposit No. PTA-976, or the amino acid sequence of any of (a) - (c).

*Sur a1
C-109*

3. An isolated polypeptide comprising an amino acid sequence selected from the group consisting of:

(a) the amino acid sequence as set forth in either SEQ ID NO: 2 or SEQ ID NO: 5 with at least one conservative amino acid substitution, wherein the polypeptide has an activity of the polypeptide set forth in either SEQ ID NO: 2 or SEQ ID NO: 5;

(b) the amino acid sequence as set forth in either SEQ ID NO: 2 or SEQ ID NO: 5 with at least one amino acid insertion, wherein the polypeptide has an activity of the polypeptide set forth in either SEQ ID NO: 2 or SEQ ID NO: 5;

10 (c) the amino acid sequence as set forth in either SEQ ID NO: 2 or SEQ ID NO: 5 with at least one amino acid deletion, wherein the polypeptide has an activity of the polypeptide set forth in either SEQ ID NO: 2 or SEQ ID NO: 5;

(d) the amino acid sequence as set forth in either SEQ ID NO: 2 or SEQ ID NO: 5 that has a C- and/or N- terminal truncation, wherein the polypeptide has an activity of the polypeptide set forth in either SEQ ID NO: 2 or SEQ ID NO: 5; and

15 (e) the amino acid sequence as set forth in either SEQ ID NO: 2 or SEQ ID NO: 5 with at least one modification selected from the group consisting of amino acid substitutions, amino acid insertions, amino acid deletions, C-terminal truncation, and N-terminal truncation, wherein the polypeptide has an activity of the polypeptide set forth in either SEQ ID NO: 2 or SEQ ID NO: 5.

20

4. An isolated polypeptide encoded by a nucleic acid molecule comprising a nucleotide sequence selected from the group consisting of:

(a) the nucleotide sequence as set forth in either SEQ ID NO: 1 or SEQ ID NO: 4;

25 (b) the nucleotide sequence of the DNA insert in ATCC Deposit No. PTA-976;

(c) a nucleotide sequence encoding the polypeptide as set forth in either SEQ ID NO: 2 or SEQ ID NO: 5; and

but a1 cont

(d) a nucleotide sequence that hybridizes under at least moderately stringent conditions to the complement of any of (a) - (c); wherein the polypeptide has an activity of the polypeptide set forth in either SEQ ID NO: 2 or SEQ ID NO: 5.

5

5. An isolated polypeptide encoded by a nucleic acid molecule comprising a nucleotide sequence selected from the group consisting of:

10 (a) a nucleotide sequence encoding a polypeptide that is at least about 70 percent identical to the polypeptide as set forth in either SEQ ID NO: 2 or SEQ ID NO: 5;

(b) a nucleotide sequence encoding an allelic variant or splice variant of the nucleotide sequence as set forth in either SEQ ID NO: 1 or SEQ ID NO: 4, the nucleotide sequence of the DNA insert in ATCC Deposit No. PTA-976, or the nucleotide sequence of (a);

15 (c) a region of the nucleotide sequence of either SEQ ID NO: 1 or SEQ ID NO: 4, the DNA insert in ATCC Deposit No. PTA-976, or the nucleotide sequence of (a) or (b), encoding a polypeptide fragment of at least about 25 amino acid residues;

(d) a region of the nucleotide sequence of either SEQ ID NO: 1 or SEQ ID NO: 4, the DNA insert in ATCC Deposit No. PTA-976, or the nucleotide sequence of 20 any of (a) - (c), comprising a fragment of at least about 16 nucleotides; and

(e) a nucleotide sequence that hybridizes under at least moderately stringent conditions to the complement of any of (a) - (d); wherein the polypeptide has an activity of the polypeptide set forth in either SEQ ID NO: 2 or SEQ ID NO: 5.

25

6. An isolated polypeptide encoded by a nucleic acid molecule comprising a nucleotide sequence selected from the group consisting of:

*Surf a
out*

(a) a nucleotide sequence encoding a polypeptide as set forth in either SEQ ID NO: 2 or SEQ ID NO: 5 with at least one conservative amino acid substitution;

5 (b) a nucleotide sequence encoding a polypeptide as set forth in either SEQ ID NO: 2 or SEQ ID NO: 5 with at least one amino acid insertion;

(c) a nucleotide sequence encoding a polypeptide as set forth in either SEQ ID NO: 2 or SEQ ID NO: 5 with at least one amino acid deletion;

10 (d) a nucleotide sequence encoding a polypeptide as set forth in either SEQ ID NO: 2 or SEQ ID NO: 5 that has a C- and/or N-terminal truncation;

(e) a nucleotide sequence encoding a polypeptide as set forth in either SEQ ID NO: 2 or SEQ ID NO: 5 with at least one modification selected from the group consisting of amino acid substitutions, amino acid insertions, amino acid deletions, C-terminal truncation, and N-terminal truncation;

15 (f) a nucleotide sequence of any of (a) - (e) comprising a fragment of at least about 16 nucleotides; and

(g) a nucleotide sequence that hybridizes under at least moderately stringent conditions to the complement of any of (a) - (f); wherein the polypeptide has an activity of the polypeptide set forth in either SEQ ID NO: 2 or SEQ ID NO: 5.

20 7. The isolated polypeptide according to Claim 2 or 3, wherein the percent identity is determined using a computer program selected from the group consisting of GAP, BLASTP, FASTA, BLASTA, BLASTX, BestFit, and the Smith-Waterman algorithm.

25 8. A composition comprising the polypeptide of any of Claims 1, 2, or 3, and a pharmaceutically acceptable formulation agent.

9. The composition of Claim 8, wherein the pharmaceutically acceptable formulation agent is a carrier, adjuvant, solubilizer, stabilizer, or anti-oxidant.

Sub a2
5 10. The composition of Claim 8, wherein the polypeptide comprises the amino acid sequence as set forth in either SEQ ID NO: 3 or SEQ ID NO: 6.

11. A polypeptide comprising a derivative of the polypeptide of any of Claims 1, 2, or 3.

10 12. The polypeptide of Claim 11 that is covalently modified with a water-soluble polymer.

Sub a3
13. The polypeptide of Claim 12, wherein the water-soluble polymer is selected from the group consisting of polyethylene glycol, monomethoxy-
15 polyethylene glycol, dextran, cellulose, poly-(N-vinyl pyrrolidone) polyethylene glycol, propylene glycol homopolymers, polypropylene oxide/ethylene oxide copolymers, polyoxyethylated polyols, and polyvinyl alcohol.

14. A fusion polypeptide comprising the polypeptide of any of Claims 1,
20 2, or 3 fused to a heterologous amino acid sequence.

15. The fusion polypeptide of Claim 14, wherein the heterologous amino acid sequence is an IgG constant domain or fragment thereof.

Sub a4
25 16. A polypeptide produced by a process comprising culturing a host cell comprising a vector comprising a nucleic acid molecule comprising a nucleotide sequence selected from the group consisting of:

(a) the nucleotide sequence as set forth in either SEQ ID NO: 1 or SEQ ID NO: 4;

(b) the nucleotide sequence of the DNA insert in ATCC Deposit No. PTA-976;

(c) a nucleotide sequence encoding the polypeptide as set forth in either SEQ ID NO: 2 or SEQ ID NO: 5; and

5 (d) a nucleotide sequence that hybridizes under at least moderately stringent conditions to the complement of any of (a) - (c); under suitable conditions to express the polypeptide, and optionally isolating the polypeptide from the culture.

10 17. A polypeptide produced by a process comprising culturing a host cell comprising a vector comprising a nucleic acid molecule comprising a nucleotide sequence selected from the group consisting of:

15 (a) a nucleotide sequence encoding a polypeptide that is at least about 70 percent identical to the polypeptide as set forth in either SEQ ID NO: 2 or SEQ ID NO: 5, wherein the encoded polypeptide has an activity of the polypeptide set forth in either SEQ ID NO: 2 or SEQ ID NO: 5;

(b) a nucleotide sequence encoding an allelic variant or splice variant of the nucleotide sequence as set forth in either SEQ ID NO: 1 or SEQ ID NO: 4, the nucleotide sequence of the DNA insert in ATCC Deposit No. PTA-976, or the nucleotide sequence of (a);

20 (c) a region of the nucleotide sequence of either SEQ ID NO: 1 or SEQ ID NO: 4, the DNA insert in ATCC Deposit No. PTA-976, the nucleotide sequence (a) or (b), encoding a polypeptide fragment of at least about 25 amino acid residues, wherein the polypeptide fragment has an activity of the encoded polypeptide as set forth in either SEQ ID NO: 2 or SEQ ID NO: 5, or is antigenic;

25 (d) a region of the nucleotide sequence of either SEQ ID NO: 1 or SEQ ID NO: 4, the DNA insert in ATCC Deposit No. PTA-976, or the nucleotide sequence of any of (a) - (c), comprising a fragment of at least about 16 nucleotides; and

*Sub A 4
Cont*

(e) a nucleotide sequence that hybridizes under at least moderately stringent conditions to the complement of any of (a) - (d); under suitable conditions to express the polypeptide, and optionally isolating the polypeptide from the culture.

5

18. A polypeptide produced by a process comprising culturing a host cell comprising a vector comprising a nucleic acid molecule comprising a nucleotide sequence selected from the group consisting of:

10 (a) a nucleotide sequence encoding a polypeptide as set forth in either SEQ ID NO: 2 or SEQ ID NO: 5 with at least one conservative amino acid substitution, wherein the encoded polypeptide has an activity of the polypeptide set forth in either SEQ ID NO: 2 or SEQ ID NO: 5;

15 (b) a nucleotide sequence encoding a polypeptide as set forth in either SEQ ID NO: 2 or SEQ ID NO: 5 with at least one amino acid insertion, wherein the encoded polypeptide has an activity of the polypeptide set forth in either SEQ ID NO: 2 or SEQ ID NO: 5;

20 (c) a nucleotide sequence encoding a polypeptide as set forth in either SEQ ID NO: 2 or SEQ ID NO: 5 with at least one amino acid deletion, wherein the encoded polypeptide has an activity of the polypeptide set forth in either SEQ ID NO: 2 or SEQ ID NO: 5;

25 (d) a nucleotide sequence encoding a polypeptide as set forth in either SEQ ID NO: 2 or SEQ ID NO: 5 that has a C- and/or N- terminal truncation, wherein the encoded polypeptide has an activity of the polypeptide set forth in either SEQ ID NO: 2 or SEQ ID NO: 5;

(e) a nucleotide sequence encoding a polypeptide as set forth in either SEQ ID NO: 2 or SEQ ID NO: 5 with at least one modification selected from the group consisting of amino acid substitutions, amino acid insertions, amino acid deletions, C-terminal truncation, and N-terminal truncation, wherein the encoded

*Sub A4
Cont*

polypeptide has an activity of the polypeptide set forth in either SEQ ID NO: 2 or SEQ ID NO: 5;

(f) a nucleotide sequence of any of (a) - (e) comprising a fragment of at least about 16 nucleotides; and

5 (g) a nucleotide sequence that hybridizes under at least moderately stringent conditions to the complement of any of (a) - (f); under suitable conditions to express the polypeptide, and optionally isolating the polypeptide from the culture.

10 19. The polypeptide of any of Claims 16, 17, or 18, wherein the host cell is a eukaryotic cell.

20. The polypeptide of any of Claims 16, 17, or 18, wherein the host cell is a prokaryotic cell.

15

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100